

Graphical Symbols For Hydraulic Circuits

Basic symbols	Spool controls	Energy transformation	Energy control			Fluid treatment																																																																																																		
PRESSURE OR RETURN LINE PILOT LINE TWO OR MORE FUNCTIONS IN ONE UNIT FLEXIBLE HOSE UNION CROSS CLOSED CONNECTION DIRECTION OF MOVEMENT DIRECTION OF ROTATION REGULATION POSSIBLE ELECTRIC SOLENOIDS WORKING IN OPPOSITE DIRECTIONS DIRECTION OF ROTATION LOOKING AT SHAFT PNEUMATIC HYDRAULIC TEST POINT SPRING THROTTLE PLUGGED PORT ROTARY UNION DETENT RETURN ABOVE/BELOW FLUID LEVEL CHECK VALVE SHUT-OFF VALVE	GENERAL SYMBOL PUSH KNOB PUSH-PULL KNOB LEVER SINGLE ACTING PEDAL DOUBLE ACTING PEDAL PLUNGER PLUNGER WITH STROKE LIMITATION SPRING ROLLER LEVER WITH ROLLER SINGLE SOLENOID PUSH/PULL SOLENOID DIRECT PILOT OPERATED PNEUMATIC / HYDRAULIC OPERATED ELECTRIC MOTOR OTHER CONTROL UNIT (NOT ELECTRIC MOTOR) INTERMEDIATE POSITION PROPORTIONAL SPOOL COUPLING INTERNAL PILOT EXTERNAL PILOT	FIXED DISPLACEMENT PUMP SINGLE-ACTING HAND PUMP (e.g. 376) DOUBLE ACTING HAND PUMP (e.g. 27906) FIXED DISPLACEMENT REVERSIBLE MOTOR WITHOUT DRAIN FIXED DISPLACEMENT REVERSIBLE PUMP WITH DRAIN FIXED DISPLACEMENT REVERSIBLE MOTOR WITH DRAIN ROTARY ACTUATOR (e.g. 1APA...) SINGLE ACTING CYLINDER DOUBLE ACTING CYLINDER DOUBLE ACTING CYLINDER WITH VARIABLE DAMPING AT ONE END DOUBLE ACTING CYLINDER WITH VARIABLE DAMPING AT BOTH ENDS DOUBLE ACTING TELESCOPIC CYLINDER SINGLE ACTING TELESCOPIC CYLINDER DOUBLE ACTING DOUBLE ROD CYLINDER ACCUMULATOR WITH GAS PRE-CHARGE	ADJUSTABLE 2-WAY FLOW CONTROL WITH REVERSE FLOW CHECK (e.g. 1VCR...D, 2VCR) ADJUSTABLE 3-WAY FLOW CONTROL WITH REVERSE FLOW CHECK (e.g. 1VCR...T, 3VCR) ADJUSTABLE 3-WAY FLOW CONTROL FLOW DIVIDER (e.g. RC...) SPOOL TYPE FLOW DIVIDER (e.g. DC03...) ROTARY FLOW DIVIDER (e.g. DSL9-9-9R) LOWERING VALVE WITH REVERSE FLOW CHECK (e.g. VF...) THROTTLE WITH REVERSE FLOW CHECK (e.g. EG...) PILOT OPERATED CHECK VALVE WITHOUT DRAIN (e.g. VRHS...03) PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02) CHECK VALVE WITH SPRING SHUTTLE VALVE LOGIC ELEMENT (e.g. 1LX...) PRIORITY VALVE (e.g. VPD...) STEERING UNITS <div> OPEN CENTRE CLOSED CENTRE CLOSED CENTRE WITH LS (FOR USE WITH PRIORITY VALVE) </div>	DIRECT ACTING RELIEF VALVE (e.g. SGRA...) PILOT OPERATED RELIEF VALVE (e.g. 3RL...) SEQUENCE VALVE (e.g. 3RS...) LEAK-FREE SEQUENCE VALVE WITH EXTERNAL DRAIN (e.g. 9464) RELIEF / UNLOADING VALVE WITH EXTERNAL HYDRAULIC PILOT AND INTERNAL DRAIN (e.g. 3RD...) REDUCING VALVE (e.g. 3RR...) ELECTRICAL UNLOADING VALVE (e.g. 3RD...) ELECTRICAL PROPORTIONAL RELIEF VALVE (e.g. 3RP...) OVER CENTRE VALVE (e.g. 2VDF...) RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...) NORMALLY OPEN SOLENOID CHECK VALVE (e.g. 9526) NORMALLY CLOSED SOLENOID CHECK VALVE (e.g. 9525)	SOLENOID OPERATED 6 PORT DIVERTER/CHANGEOVER VALVE (e.g. M9278...) SOLENOID DIVERTER VALVE WITH EXTERNAL DRAIN (e.g. M9848...) DIRECT ACTING SOLENOID DIRECTIONAL VALVE (SPOOL FORM 1 e.g. 5EVP3D1...) DIRECT ACTING SOLENOID DIRECTIONAL VALVE (SPOOL FORM 2 e.g. 5EVP3D2...) PILOT OPERATED SOLENOID DIRECTIONAL VALVE (e.g. 5EVP3P2C06...) DIRECT ACTING SEATED SOLENOID DIRECTIONAL VALVE (e.g. ECP...) DIRECT ACTING PROPORTIONAL SOLENOID DIRECTIONAL VALVE (e.g. EP3D...) PILOT OPERATED PROPORTIONAL SOLENOID DIRECTIONAL VALVE (e.g. EP3P...) SERIES DIRECTIONAL CONTROL VALVE (e.g. 101..., 102..., 1102...) SERIES DIRECTIONAL CONTROL VALVE WITH NEGATIVE OVERLAP AND VALVES IN SPOOL (e.g. 101..., 102..., 1102... SPOOLS A AND B) PARALLEL DIRECTIONAL CONTROL VALVE (e.g. 402..., 1402..., 406..., 1406..., 1504...) PARALLEL DIRECTIONAL CONTROL VALVE (e.g. 407..., 1408...) PARALLEL DIRECTIONAL CONTROL VALVE FOR USE WITH LS PUMPS (e.g. 406L..., 1406L..., 1504L...) PARALLEL DIRECTIONAL CONTROL VALVE FOR USE WITH LS PUMPS WITH FLOW CONTROL FUNCTION (e.g. 1504L...X...)	BREATHING WITH FILTER FILTER (e.g. 2FA...) FILTER WITH INDICATOR (e.g. 1FRF...+ 1FRD) WATER / OIL COOLER AIR / OIL COOLER HEATER TEMPERATURE CONTROLLER <tr> <th colspan="7">Measuring instruments and indicators</th></tr> <tr> <td></td><td>PRESSURE INDICATOR</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>PRESSURE TRANSDUCER</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>PRESSURE GAUGE (e.g. MGP...)</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>DIFFERENTIAL PRESSURE GAUGE</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>FLUID LEVEL GAUGE</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>FLUID LEVEL TRANSDUCER</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>THERMOMETER</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>FLOW INDICATOR</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>FLOW METER</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>TACHOMETER</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>TORQUE METER</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>PRESSURE SWITCH</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td>MICRO SWITCH</td><td></td><td></td><td></td><td></td><td></td></tr>	Measuring instruments and indicators								PRESSURE INDICATOR							PRESSURE TRANSDUCER							PRESSURE GAUGE (e.g. MGP...)							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